**IT Applications Unit 3, AOS 1, Online Communities**

1. Complete the following, from pgs, 28- 32: **Transmission media**

**Networks are classified according to below and we will study the following:**

1. Network Categories: LAN, WAN
2. Network Architecture, client-server; peer-to-peer; internet peer-to-peer; intranet
3. Network communication standards
4. Network hardware and software
5. **Transmission media**
6. Network security

**Transmission media**

**Physical Transmission**

**Twisted – pair cable**

1. What is twisted pair cable? A twisted pair cable is a coaxial cable that only has 2 wires inside of it.
2. Why do new networks use CAT 5E or CAT 6 rather than CAT 3? CAT5E and CAT6 are used because they support more Mbps transfer speed and it’s usually over a longer distance.
3. What are some disadvantages of CAT 5E and why is it used in so many installations? Some disadvantages of CAT5E is that it can only be used over a small distance but the reason it is used in so many installations is because it supports up to a 1GB Transfer rate
4. What type of networks is this cable largely used in? This kind of cable is largely used in star networks.

**Coaxial Cable**

1. Describe the characteristics of this cable. Coaxial cable is usually used to connect TV’s to the aerial.
2. What network is it used in? Coaxial cable is commonly used in bus networks.

**Fibre-optic cable**

1. Describe the characteristics of this cable. Fibre-optic cabling consists of special glass or plastic strands that can transmit light pulses, the light pulses are not susceptible to electromagnetic interference and can carry data up to 2km’s.
2. Why is Fibre-Optic cabling often used to connect major switches inside buildings as well as between buildings. Fibre-Optic cable is often used to connect major switches in buildings and between buildings because multiple users can make use of a single strand at exactly the same time.
3. What are the disadvantages of this cable? One disadvantage of this cable is that the speed of data transfer relies solely upon the quality of the light generator and light receiver on the ends of the strand; another is that it’s really expensive.

**Wireless Transmission,** p 30

**Radio Waves**

1. What is required for radio transmissions to occur? For radio transmission is to occur a transmitter and a receiver is needed.
2. Wi-Fi networks use radio waves. What are its advantages over a cable network and what are its disadvantages? The advantages of using radio waves over a cable network is that it a more flexible and portable, the disadvantages are that it is slower than a direct cable connection.
3. Describe the characteristics of Bluetooth. The characteristics of Bluetooth are that it uses short-range radio waves to transmit data over up to 10 metres.

**Microwaves**

1. Describe the characteristics of microwave transmission. Microwave transmission require line of sight transmission and the transmission can pass through the earth with less interference than longer wavelength radio waves.
2. What are the limitations of microwave transmission? The limitations is that it requires line of sight and that it only transfers over a short distance.

**Satellite**

1. Satellite transmission can be in what forms? Satellite transmissions can be in the form of Radio waves and Microwaves.
2. What are the limitations of this form of transmission? The limitations of satellite transmission are the distance that the waves have to travel between the satellite and the earth.
3. Who might use this form of transmission? Satellite transmission is commonly used for television broadcasts, videoconferencing, GPS and the internet.

**Infra-red**

1. Describe the characteristics of infra-red transmission. Infra-red transmission uses the same technology as TV and video remote controls, slow data transfer, uses a line of sight based system and is effective over short distances.
2. Why is radio wireless networking preferable to infra-red wireless networking? Radio wireless networking is preferable to Infra-red transmission as Infra-red requires line of sight transmission and is only effective over short distance where-as Radio wireless networking is the opposite.